

Claims

1. A susceptor system for an apparatus of the type adapted to treat substrates and/or wafers, the susceptor system being provided with a cavity (1) which acts as a chamber for the treatment of the substrates and/or wafers and which extends in a longitudinal direction and is delimited by an upper wall (2), by a lower wall (3), by a right-hand side wall (4), and by a left-hand side wall (5), the upper wall (2) being constituted by at least one piece of electrically conducting material suitable for being heated by electromagnetic induction, the lower wall (3) being constituted by at least one piece of electrically conducting material suitable for being heated by electromagnetic induction, the right-hand side wall (4) being constituted by at least one piece of inert, refractory and electrically insulating material, the left-hand side wall (5) being constituted by at least one piece of inert, refractory and electrically insulating material, so that the or each piece of the upper wall (2) is electrically insulated from the or each piece of the lower wall (3), the pieces (2, 3, 4, 5) being included in the susceptor system.
2. A susceptor system according to Claim 1 in which each of the walls (2, 3, 4, 5) is constituted by a single piece.
3. A susceptor system according to Claim 1 or Claim 2 in which the or each piece of the upper wall (2) and of the lower wall (3) is made of graphite or similar electrically conducting material and is coated with a layer of silicon, tantalum, niobium, or boron carbide, or of silicon, boron, or aluminium nitride, or of similar inert and refractory material, at least in the areas adjacent the cavity (1).
4. A susceptor system according to any one of Claims 1, 2 and 3, in which the or each piece of the side walls (4, 5) is made of silicon carbide or of boron nitride.
5. A susceptor system according to any one of the preceding claims, in which the external shape of the cross-section of the susceptor system is substantially uniform in the longitudinal direction and is substantially circular or elliptical.
6. A susceptor system according to any one of the preceding claims, in which the shape of the cross-section of the cavity (1) is substantially uniform in the longitudinal direction.

7. A susceptor system according to any one of the preceding claims, in which the average width of the cavity (1) is at least three times, more preferably at least five times, the average height of the cavity (1).
8. A susceptor system according to any one of the preceding claims in which the pieces of the side walls (4, 5) have cross-sections of substantially rectangular or trapezoidal shape.
9. A susceptor system according to any one of the preceding claims in which the piece of the upper wall (2) and/or the piece of the lower wall (3) have cross-sections having the external shape substantially of a segment of a circle or a segment of an ellipse.
10. A susceptor system according to any one of the preceding claims, in which the piece of the upper wall (2) and/or the piece of the lower wall (3) have grooves (22, 32) and/or ribs in the longitudinal direction for joining with the pieces of the side walls (4, 5).
11. A susceptor system according to any one of the preceding claims in which the piece of the upper wall (2) and/or the piece of the lower wall (3) is hollow so as to have at least one hole (21, 31), preferably a through-hole, which extends in the longitudinal direction.
12. A susceptor system according to any one of the preceding claims, comprising a slide (6) mounted inside the cavity (1) and suitable for supporting at least one substrate or at least one wafer, the slide (6) being slidable in guided manner in the longitudinal direction.
13. A susceptor system according to Claim 12 in which the lower wall (3) has a guide (33) which is suitable for receiving the slide (6) and which extends in the longitudinal direction so that the slide (6) can slide along the guide (33).
14. A susceptor system according to Claim 12 or Claim 13 in which the slide (6) comprises at least one disc (61) suitable for supporting at least one substrate or at least one wafer, and is provided with a recess (62) suitable for housing the disc (61) rotatably.

15. Apparatus of the type adapted to treat substrates and/or wafers, characterized in that it comprises at least one susceptor system (2, 3, 4, 5) according to any one of Claims 1 to 14.
16. Apparatus according to Claim 15, comprising a first refractory and thermally insulating structure (7) which surrounds the susceptor system (2, 3, 4, 5) and is constituted substantially by a tube of high-porosity graphite or similar material and which extends in the longitudinal direction.
17. Apparatus according to Claim 16 in which the tube is divided, in the longitudinal direction, into two half-tubes (71, 72) and the first structure (7) further comprises two elements (73) of refractory, thermally insulating and preferably electrically insulating material which extend in the longitudinal direction and are disposed between the two half-tubes (71, 72).
18. Apparatus according to any one of Claims 15 to 17, comprising a second, hermetic structure (8) suitable for surrounding the first structure (7).
19. Apparatus according to any one of Claims 15 to 18, comprising electrical conduction means (9) which are suitable for heating the susceptor system by electromagnetic induction and which are wound around the first structure (7) or around the second structure (8).
20. Apparatus according to any one of Claims 15 to 19, comprising means for causing at least one gas-flow to flow in at least one through-hole (21, 31) of the susceptor system.
21. Apparatus according to any one of Claims 15 to 20, characterized in that it is a reactor for the epitaxial growth of silicon carbide or similar material on substrates.
22. Apparatus according to any one of Claims 15 to 20, characterized in that it is an apparatus for the high-temperature thermal treatment of wafers.